cover **410** and the main body **420** is 90°. Thereafter, when the first casing **410** shown in FIG. **9** rotates another 90° to reach the position shown in FIG. **10**, the second equation, namely, S+Y=R+X, must be satisfied. At this position, the angle between the cover **410** and the main body **420** is 180°. In FIGS. **11** and **12**, the cover **410** rotates respectively 270° relative to the main body **420** and 360° relative to the main body **420**. At the position of FIG. **12**, the cover **410** abuts a bottom surface of the main body **420**.

Therefore, if the geometry relationship of the lever **440** and the hinge structure **430** and their connections with the cover **410** and main body **420** satisfies the two aforementioned equations, the cover **410** can rotate up to 360° relative to the main body **420** and the position of the cover **410** relative to the main body **420** can be always ascertained throughout the rotation of the cover **410**.

In the following table, different examples of values of R, X, Y and S that meet the two aforementioned equations are listed. With these values, a person skilled in the art can readily construct the handheld electronic device **400** in accordance with the second embodiment of the present invention with a variety of sizes.

| R | X | Y | S | R + X | S + Y |
|---|---|---|---|---|---|
| 2.000 | 1.000 | 0.500 | 2.500 | 3.000 | 3.000 |
| 2.000 | 2.000 | 0.667 | 3.333 | 4.000 | 4.000 |
| 2.000 | 3.000 | 0.750 | 4.250 | 5.000 | 5.000 |
| 2.000 | 4.000 | 0.800 | 5.200 | 6.000 | 6.000 |
| 2.000 | 5.000 | 0.833 | 6.167 | 7.000 | 7.000 |
| 2.000 | 6.000 | 0.857 | 7.143 | 8.000 | 8.000 |
| 2.000 | 7.000 | 0.875 | 8.125 | 9.000 | 9.000 |
| 2.000 | 8.000 | 0.889 | 9.111 | 10.000 | 10.000 |
| 3.000 | 1.000 | 0.600 | 3.400 | 4.000 | 4.000 |
| 3.000 | 2.000 | 0.857 | 4.143 | 5.000 | 5.000 |
| 3.000 | 3.000 | 1.000 | 5.000 | 6.000 | 6.000 |
| 3.000 | 4.000 | 1.091 | 5.909 | 7.000 | 7.000 |
| 3.000 | 5.000 | 1.154 | 6.846 | 8.000 | 8.000 |
| 3.000 | 6.000 | 1.200 | 7.800 | 9.000 | 9.000 |
| 3.000 | 7.000 | 1.235 | 8.765 | 10.000 | 10.000 |
| 3.000 | 8.000 | 1.263 | 9.737 | 11.000 | 11.000 |
| 3.000 | 9.000 | 1.286 | 10.714 | 12.000 | 12.000 |
| 4.000 | 1.000 | 0.667 | 4.333 | 5.000 | 5.000 |
| 4.000 | 2.000 | 1.000 | 5.000 | 6.000 | 6.000 |
| 4.000 | 3.000 | 1.200 | 5.800 | 7.000 | 7.000 |
| 4.000 | 4.000 | 1.333 | 6.667 | 8.000 | 8.000 |
| 4.000 | 5.000 | 1.429 | 7.571 | 9.000 | 9.000 |
| 4.000 | 6.000 | 1.500 | 8.500 | 10.000 | 10.000 |
| 4.000 | 7.000 | 1.556 | 9.444 | 11.000 | 11.000 |
| 4.000 | 8.000 | 1.600 | 10.400 | 12.000 | 12.000 |
| 4.000 | 9.000 | 1.636 | 11.364 | 13.000 | 13.000 |
| 4.000 | 10.000 | 1.667 | 12.333 | 140.000 | 14.000 |
| 4.000 | 11.000 | 1.692 | 13.308 | 15.000 | 15.000 |
| 4.000 | 12.000 | 1.714 | 14.286 | 16.000 | 16.000 |
| 5.000 | 1.000 | 0.714 | 5.286 | 6.000 | 6.000 |
| 5.000 | 2.000 | 1.111 | 5.899 | 7.000 | 7.000 |
| 5.000 | 3.000 | 1.364 | 6.636 | 8.000 | 8.000 |
| 5.000 | 4.000 | 1.538 | 7.462 | 9.000 | 9.000 |
| 5.000 | 5.000 | 1.667 | 8.333 | 10.000 | 10.000 |
| 5.000 | 6.000 | 1.765 | 9.235 | 11.000 | 11.000 |
| 5.000 | 7.000 | 1.842 | 10.158 | 12.000 | 12.000 |
| 5.000 | 8.000 | 1.905 | 11.095 | 13.000 | 13.000 |
| 5.000 | 9.000 | 1.957 | 12.043 | 14.000 | 14.000 |
| 5.000 | 10.000 | 2.000 | 13.000 | 15.000 | 15.000 |
| 5.000 | 11.000 | 2.037 | 13.963 | 16.000 | 16.000 |
| 5.000 | 12.000 | 2.069 | 14.931 | 17.000 | 17.000 |
| 5.000 | 13.000 | 2.097 | 15.903 | 18.000 | 18.000 |
| 5.000 | 14.000 | 2.121 | 16.879 | 19.000 | 19.000 |
| 5.000 | 15.000 | 2.143 | 17.857 | 20.000 | 20.000 |

In the aforementioned table, the values of the R, X, Y, S of each row are set to express the dimensional proportions of theses dimensions in the handheld electronic device **400**. There are three rows in the table in which the dimensional proportions of these dimensions are integrals, i.e., 3:3:1:5, 4:2:1:5 and 5:10:2:13 for R:X:Y:Z, by which the person can easily construct the handheld electronic device **400** which can operate perfectly smoothly. For those rows having values not being integral, a round off to the nearest hundredth thereof can be used. For example, the R:X:Y:Z of the last row can be rounded off to be 5:15:2.14:17.86. Due to operation tolerance, such round off will not too adversely affect the smoothness of the operation of the device **400**.

In the present embodiment, the display screen (not shown) and the keyboard (not shown) are disposed on the cover **410** and the main body **420**, respectively. When the cover **410** rotates 360° relative to the main body **420** to abut against the bottom surface of the main body **420** as shown in FIG. **12**, the display screen and the keyboard face opposite directions. At this position, the user can easily input information to the device **400** through use of a stylus (not shown) tapping on the display screen, which in the preferred embodiment is a touch screen. Furthermore, at this position, the user can easily use the device **400** as a wireless Internet browser or a wireless PDA phone.

In this embodiment of the present invention, although only one lever **440** is shown connected to one side of the device **400**, it can be easily understood by persons skilled in the art that a second lever can be used to secure the other side of the device **400** to enhance the structural integrality and robustness of the device **400**. FIG. **13** is a perspective view showing a handheld electronic device **500** in accordance with a third embodiment of the present invention, which differs from the second embodiment only regarding the disposition of the level. In the third embodiment, the lever (not shown) is no longer placed on a side of the handheld electronic device, but is placed in a slit **502** defined in a middle of a front end portion of the handheld electronic device **500**. Like the second embodiment, the device **500** has a hinge structure **530** connecting with a first pivot portion of a cover **510** and a second pivot portion of a main body **520** of the device **500**, respectively. Furthermore, the lever has two ends pivotably connected to the cover **510** and the main body **520** of the device **500**, respectively. By such design, the lever is hidden in the device **500**, thereby enhancing the aesthetic appeal of the device **500**. The operation of the device **500** is the same as that of the device **400** of the second embodiment.

It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention covers modifications and variations of this invention provided they fall within the scope of the following claims and their equivalents.

What is claimed is:

**1**. A handheld electronic device, comprising:

a first casing having a first pivot portion;

a second casing having a second pivot portion, wherein the first and the second pivot portions each has a plurality of teeth thereon, the teeth meshing with each other; and

a hinge structure to which the first pivot portion of the first casing and the second pivot portion of the second casing are pivotably connected, the first casing being free to rotate 360° relative to the second casing, and a path of the first casing during its rotation relative to the second casing being predetermined, wherein

the hinge structure comprises:

a first axle cap;